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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/530,606	02/21/2006	Hans G. Boman	3612.1001-000	9912

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EXAMINER	
SWARTZ, RODNEY P	
ART UNIT	**PAPER NUMBER**
1645	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/09/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/530,606	BOMAN ET AL.	
	Examiner	Art Unit	
	Rodney P. Swartz, Ph.D.	1645	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *7April2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12,14-17 and 29-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12,14-17 and 29-32* is/are rejected.

7)☒ Claim(s) *22* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *7April2005* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *4/05,8/05,9/06*.
4) ☐ Interview Summary (PTO-413)' Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Applicants' Preliminary Amendment, received 7 April 2005, is acknowledged. Claims 3, 5, 7, 8, 12, 14, 15, 16, 17, 18, 19, 22, 31, and 32 have been amended. Claims 13 and 28 have been canceled.

2. Claims 1-12, 14-27, and 29-32 are pending and under consideration.

Specification

3. The disclosure is objected to because of the following informalities:

Page 5, line 18, clarify "from and Kostmann"; line 20, "internalisation" should be "internalization".

Page 8, line 21, "defence" should be "defense".

Page 10, line 3, "amtimicrobial" should be "antimicrobial".

Page 12, line 28, "Kostmann morbus" should be "morbus Kostmann" for consistency with the rest of the specification.

Page 17, line 8, "Patient's" should be "Patients"; line 10, clarify "agent is00 an amount".

Page 18, line 8, "symptom" should be "symptoms".

Page 19, line 20, "humanised" should be "humanized"; line 21, "hybridises" should be "hybridizes"; line 23-24, clarify "contain one or mismatch"; line 24, "hybridising" should be "hybridizing"; line 27, clarify "bind not bind or binds".

Page 22, line 10, "analysed" should be "analyzed"; line 24, clarify "Umea, dnr 01-250".

Page 23, line 18k "chemiluminicence" should be "chemiluminescence".

Page 24, line 13, "transplated" should be "transplanted"; line 26, "2,5h" should be "2.5h"; line 28, "analysed" should be "analyzed".

Page 28, line 6, "defence" should be "defense".

Appropriate correction is required.

Drawings

4. Figure 2 is objected to because "Fluorecence" should be "Fluorescence". Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

5. Claim 22 is objected to because of the following informality: line 2, "Kostmann morbus" should be "morbus Kostmann" for consistency with the rest of the application. Appropriate correction is required.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the

art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1-8, 10-12, and 20-27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims are drawn to methods comprising determining susceptibility to infection by detecting any LL-37 in a sample from a subject. The determination is wherein no LL-37 or a "low level" of LL-37 indicates the subject's infection susceptibility. Determining control levels of LL-37 are "optional".

It is unclear how one determines if any particular level is not normal if there are no control levels determined and compared to. In addition, the metes and bounds of what constitutes a "low level" are unclear because the specification merely gives examples, and does not define the term.

8. Claims 9, 14-19, and 29-31 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for methods for the determination of levels of LL-37 in body fluids and *in vitro* methods for bactericidal assays utilizing LL-37, does not reasonably provide enablement for compositions for or methods of treatment *in vivo*. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

Enablement requires that the specification teach those in the art to make and use the invention without undue experimentation. Factors to be considered in determining whether a disclosure would require undue experimentation include (1) the nature of the invention, (2) the

state of the prior art, (3) the predictability or lack thereof in the art, (4) the amount of direction or guidance present, (5) the presence or absence of working examples, (6) the quantity of experimentation necessary, (7) the relative skill of those in the art, and (8) the breadth of the claims.

The nature of the invention - Claims 9 and 14-19 are drawn to a method of treating an individual to reduce the risk of infection comprising administration of an amount of LL-37. Claims 29-30 are drawn to products comprising LL-37 and either cytostatic drugs, corticosteroids or growth factors in forms for treatement of subjects *in vivo*. Claim 31 is drawn to a method of treating an infection in a subject by administration of a therapeutically effective amount of LL-37.

The state of the prior art - teaches that LL-37 is an antimicrobial peptide found in human neutrophils and expressed in skin and gingiva and appears to play an important role in defense against invading pathogens (Weinberg et al, Crit. Rev. Oral Biol. Med., 9(4):399-414, 1998). However, at the time of filing of the instant application, the art did not provide clinical or experimental *in vivo* information concerning treatment of infection or prophylactic administration of LL-37 to subjects. Thus, there is a lack of predictability in the art for treatments of subjects by administration of LL-37.

The specification teaches methods for the determination of levels of LL-37 in body fluids and *in vitro* methods for bactericidal assays utilizing LL-37. However, the specification is insufficient for the extremely broad scope of the instant claims, i.e., *in vivo* treatment of current infections or prophylactic treatment of subjects with administration of LL-37. For instance, the specification provides no dose regimen, composition parameters, effective dose levels needed for *in vivo* efficacy, or tissue availability.

Thus, the extremely broad treatment scope of the instant claims constitute merely an invitation to experiment without a reasonable expectation of success.

Conclusion

9. No claims are allowed.

10. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Rodney P. Swartz, Ph.D., Art Unit 1645, whose telephone number is (571) 272-0865. The examiner can normally be reached on Monday through Thursday from 9:00 AM to 7:30 PM EST.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's Supervisor, Jeffrey Siew, can be reached on (571)272-0787.

The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RODNEY P SWARTZ, PH.D
PRIMARY EXAMINER
Art Unit 1645

March 30, 2007